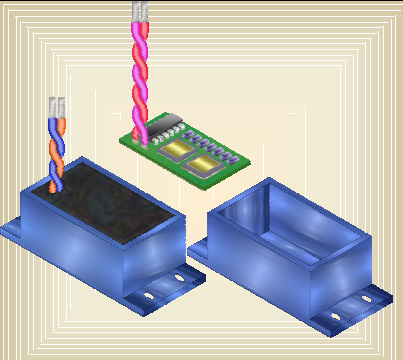
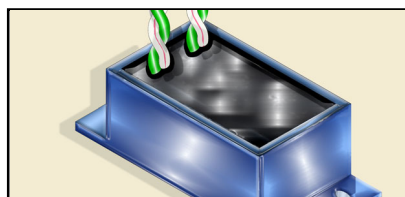
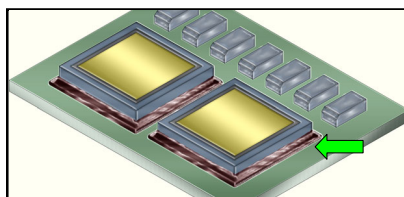


POLYMERIC SYSTEMS GENERAL REQUIREMENTS	
	<p>GENERAL REQUIREMENTS</p> <p>Polymeric systems provide mechanical and cushioning support to components, improved thermal profile / thermal sinking, and tamper-resistant, environmental packaging.</p> <p>Encapsulation is a process in which electronic subassemblies (i.e.: power supplies, amplifiers, hybrid circuits, etc.) are embedded in a polymer (i.e.: silicon, epoxy gel) to produce a unitized, sealed assembly.</p> <p>Underfill is a process in which a polymer (i.e.: epoxy) is injected under an electronic component to improve thermal coefficient (tc) match and extend solder joint fatigue life.</p>



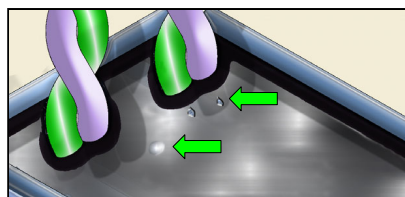
**PREFERRED
ENCAPSULANT**

Material is fully cured, with a smooth, continuous surface extending over all embedded components, and exhibits fully wetted, continuous contact fillets with protruding devices (wires, cable, connector, etc.) and the enclosure wall. No bubbles, cavities, striation marks, or spillage.



**PREFERRED
UNDERFILL**

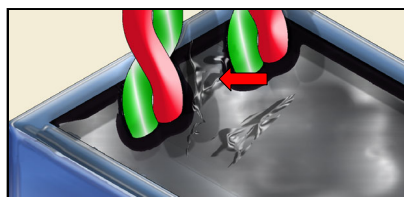
Material exhibits complete and uniform flow under the component body. Peripheral fillets are smooth and uniform, with a concave profile. No bubbles, cavities, or spillage.



**ACCEPTABLE
BUBBLES / CAVITIES**

Minor surface bubbles or cavities that do not extend to underlying components or conductive surfaces, are isolated, or bridge between conductors are acceptable.

[Best Workmanship Practice](#)



**UNACCEPTABLE
BUBBLES / CAVITIES**

Bubbles or cavities that bridge conductors are unacceptable.

[Best Workmanship Practice](#)

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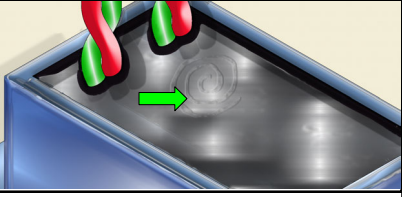
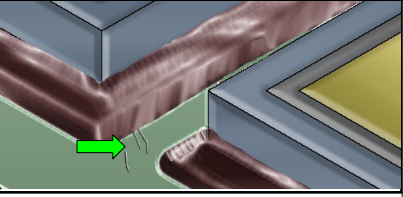
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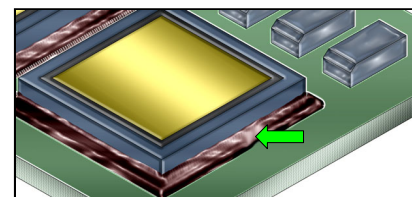
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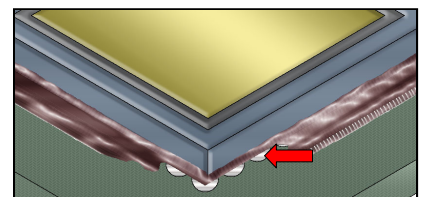
POLYMERIC SYSTEMS GENERAL REQUIREMENTS (cont.)	
	<p>ACCEPTABLE STRIATION / FLOW MARKS</p> <p>Striation / flow marks are an indicator of material flow during fill / pour, and are acceptable, provided no other defects are evident and the material meets wetting, cure and hardness requirements.</p> <p>Best Workmanship Practice</p>
	<p>ACCEPTABLE STRINGING</p> <p>Minor stringing is acceptable, provided the deposit is completely adhered, does not contact exposed conductive circuits, component leads, jumpers, or glass-bodied components, and is not subject to flexure.</p> <p>Best Workmanship Practice</p>



**ACCEPTABLE
UNDERFILL FILLETS**

Assembly exhibits proper fill, with complete positive fillets extending around the periphery of the device body.

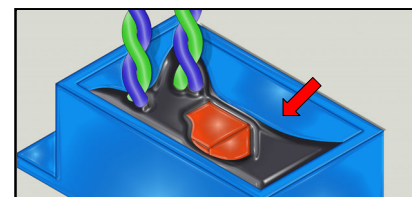
[Best Workmanship Practice](#)



**UNACCEPTABLE
INCOMPLETE / PARTIAL UNDERFILL**

Incomplete or partial underfill can result in solder joint failure and incorrect / uneven thermal profile.

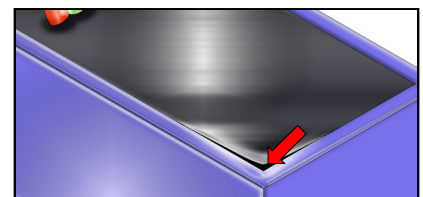
[Best Workmanship Practice](#)



**UNACCEPTABLE
EXPOSED CIRCUITRY / COMPONENTS**

Assemblies exhibiting exposed circuitry, components, conductive surfaces shall be rejected.

[Best Workmanship Practice](#)



**UNACCEPTABLE
PULL-AWAY / PARTING**

Assemblies exhibiting pull-away of the encapsulant shall be rejected. Pull-away is caused by improper adhesion, improper wetting, or excessive shrinkage.

[Best Workmanship Practice](#)

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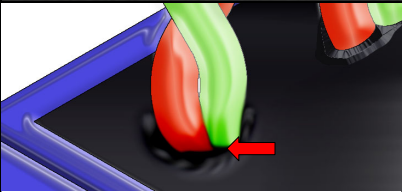
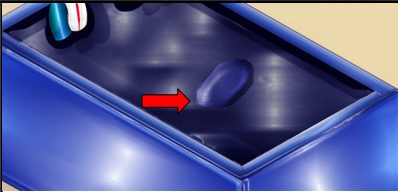
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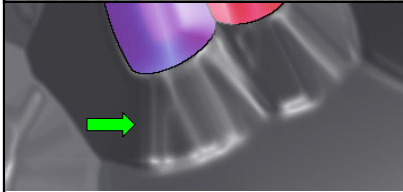
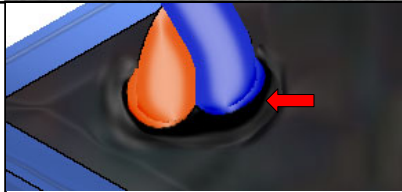
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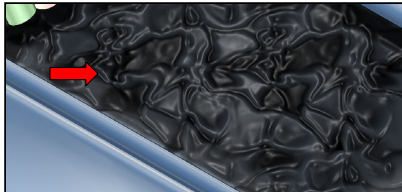
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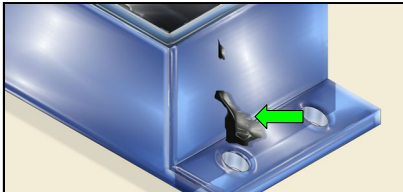
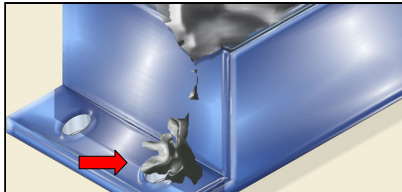
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POLYMERIC SYSTEMS GENERAL REQUIREMENTS (cont.)	
	
<p>UNACCEPTABLE RECESSED FILLETS</p> <p>Recessed (negative) fillets indicate improper wetting / non-wetting and shall be grounds for rejection.</p> <p>Best Workmanship Practice</p>	<p>UNACCEPTABLE TACKINESS</p> <p>Tackiness indicates an improper / incomplete cure. Tackiness usually manifests itself in the generation of residual fingerprint reliefs (permanent marks) and/or depressions, following light touching of the surface.</p> <p>Best Workmanship Practice</p>

POLYMERIC SYSTEMS GENERAL REQUIREMENTS (cont.)	
	
<p>ACCEPTABLE ENCAPSULANT FILLETS</p> <p>Assembly exhibits proper fill, with complete fillets extending a minimum of two (2) largest wire diameters above the encapsulant surface.</p> <p>Best Workmanship Practice</p>	<p>UNACCEPTABLE MISSING FILLETS</p> <p>Assembly does not exhibit required fillets extending two (2) largest wire diameters above the encapsulant surface.</p> <p>Best Workmanship Practice</p>

	
<p>ACCEPTABLE PROFILE / FINISH</p> <p>A rough profile / finish is caused by gel set (pre-cure) of the material, before the material has had sufficient time to smoothly settle and flow. Minor roughness that does not interfere with the form, fit, or function of the device is acceptable.</p> <p>Best Workmanship Practice</p>	<p>UNACCEPTABLE PROFILE / FINISH</p> <p>Excessive peaks, crests, or folds indicate that the material was worked beyond its pot life. Assemblies typically exhibit improper adhesion, entrapped voids, etc. and shall be rejected.</p> <p>Best Workmanship Practice</p>

	
<p>ACCEPTABLE SPILLAGE</p> <p>Minor spillage that does not interfere with the form, fit, or function of the device is acceptable.</p> <p>Best Workmanship Practice</p>	<p>UNACCEPTABLE EXCESSIVE FILL / SPILLAGE</p> <p>Excessive fill or spillage that interferes with the form, fit, or function shall be rejectable.</p> <p>Best Workmanship Practice</p>

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